Does Social Performance Drives Corporate Governance Mechanism in MFIs? An Issue of Endogeneity

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ABSTRACT

Microfinance institutions of Asia work exclusively with the mission of social welfare hence play an important role in the economic and financial development of a region.Endogeneity poses a serious threat to the authenticity of corporate governance and performance studies because of the endogenous nature of many governance and performance variables. Thispaper addresses this issue in the context of microfinance sector in Asia by answering the question whether social performance determines the corporate governance mechanism of MFIs. Using a panel of 173 MFIs in 18 Asian countries for the period of five years, a comprehensive corporate governance index (CGI)based on of seven internal governance mechanism variables in constructed as an indicator of the overall corporate governance mechanism of MFIs. By employing GLS model, our results indicate insignificant impact of corporate governance on many social performance variables which are attributed to the endogenous nature of this relationship as the significance of results improved by studying relationship in reverse direction by employing ordered logit model. Our results indicate that social performance is an important determinant of corporate governance mechanism of MFIs even after controlling for MFI related characteristics.

Keywords: Microfinance, Corporate Governance, Social performance,Endogeneity, Asia

1. INTRODUCTION

Many studies in literature provide the evidence of the link between corporate governance practices and financial performance of firms suggesting either good governance leads to improved financial performance in firms (Morck et al. 1988; Wruck, 1989; Welbourne, 1999; Randoy and Goel, 2001; Mitton, 2002; Fernandez and Gomez, 2002; Oxelheim et al. 2003; Chen et al. 2007) or corporate governance itself is affected by prior firm performance (Kole, 1996; Loderer and Martin, 1997; Cho, 1998; Bohren and Odegaard, 2001; Farooque et al. 2007a; 2007b). These studies have basis in Jensen and Meckling's (1976) agency theory which states that well defined corporate governance system is an effective tool in reducing conflict of interest between managers and shareholders of firms. Stakeholder theory takes us one step ahead by advocating that firms should be managed in the interest of all stakeholders like customers, employees, society etc. instead of only shareholders. Hence it can be said that corporate social responsibility is a missing link between corporate governance and performance which can be used strategically to resolve conflicts between managers and shareholders of firm (Freeman, 1984). Jensen, 2002; Scherer et al. 2006; Harjoto and Jo 2011; Jo and Harjoto, 2011; 2012 found evidence of conflict-resolution hypothesis using social responsibility as a missing link between corporate governance and firm performance.

Recently microfinance sector, which was developed in response to the prevailing poverty conditions in Asia (Daherand Sout, 2013), is experiencing "mission drift" from its primary social goals to profit maximization (Vanroose, 2007; Cull et al. 2007; Gonzalez et al. 2008; Hermes et al. 2009; Sinha et al. 2011; Schmied; 2014). Mersland and Strom (2008); (2009); Coleman and Osei (2008); Manderlier et al. (2009); Bassem (2009); Tchuigoua (2010); Aboagye and Otieku (2010); Hartarska and mersland (2012) and Galema et al. (2012) found evidence of how corporate governance practices in microfinance institutions can help them in fulfilling their social responsibility. However, this is only the one dimension of corporate governance and social responsibility relationship that has been addressed in microfinance literature. Ackerman (1973) pointed out that firms social orientation is not only derived by the managers good intentions but should be a constant part of firms business practices. Graaf and Herkstroter (2007) asserted that

corporate social responsibility of a firm is entrenched into its governance structure which makes it possible to incorporate stakeholder's interest in business processes. Jamali et al. (2008) suggested that corporate governance and social performance are overlapping concepts with corporate governance as a pillar of corporate social responsibility or corporate social responsibility as a dimension of corporate governance. In fact more and more firms are integrating corporate social responsibility concepts in their business practices by using special corporate responsibility committees in their governance structures (Spitzeck, 2009). Labie and Mersland (2011) suggested incorporating stakeholders approach in corporate governance literature of microfinance to broaden its vision and suggested that it would help identify how MFIs are really managed in relatively un-regulated and market ill-disciplined governance structure of microfinance. Mori and Mersland (2014) proved that the board structure and performance of MFIs is greatly influenced by the stakeholder's representation. Microfinance, which provides financial services to poorest and under-privileged, is relatively riskier sector of economy with the most pressing risks facing this industry are risk of over-indebtedness, credit recovery and quality of management and governance (CSFI, 2014). Black et al. (2006) found evidence of improved corporate governance in riskier firms and concluded that more risky firms needs strict monitoring and control practices hence have overall better governance systems. Secondly if stakeholder perspective is true in microfinance and managers use social responsibility strategically to reduce agency conflicts then increased social responsibility should also bring improved governance structure in MFIs. Hence, we employee stakeholders approach in our paper to examine the corporate governance and social performance relationship by first studying how corporate governance can improve social orientation in microfinance sector of Asia and later answering the question whether more socially responsible MFIs of Asia are also better in their governance structures.

The paperis organized as follows.Section II discusses the relevant literature followed by research methodology presented in section III. The descriptive and empirical analysis is presented in section IV followed by conclusion and recommendations at the end in section V.

1. LITERATURE REVIEW

Different researchers have studied the relationship between corporate governance and firm performance in different sectors and have found problems of endogeneity. Dalton et al. (1999) performed Meta-analysis and found positive relationship between board size and firm

performance. Meta-analysis cannot determine the direction of causality so it was not clear whether board size increases performance or vice versa so they concluded that future research was needed for assessing the direction of causality. Borsch and Koke (2002) surveyed different papers on corporate governance and found certain econometric problems in those empirical studies. Most common problem which they noticed was that certain variables were assumed to be exogenous but were actually endogenous. They claimed that reverse causality is present in the relationship of corporate governance and firm performance. Cho (1998) studied the relationship of ownership structure, investment and corporate value in 326 manufacturing firms of Fortune 500. Evidence of endogeneity was found in the results and it was concluded that investment affects value of firm which further affects ownership structure while ownership structure had no effect on corporate value. Gruszczynski (2006) studied corporate governance ratings as endogenous variable and concluded that companies having high profits and low debt ratio will probably have good corporate governance ratings.

Zhao et al. (2009) studied the determinants of board size and composition. Firm size, growth opportunities, geographical distribution and M&A activity were considered important determinants of board size and composition. Farooque et al. (2007 and 2012) also studied corporate governance endogenously and found evidence of reverse causality between performance and corporate governance in listed firms of Dhaka stock exchange for period of 8 years. Valenti et al. (2011) studied the impact of firm performance changes on board composition and found decreased board size and outsiders after decreased performance.

The evidence of leadership structure as an endogenous issue was also provided by Chen et al. (2008). They found that firms which changed their leadership structure were experiencing declining performance and their performance did not improve after changing leadership structure.

Elsayed (2007) found no impact of leadership structure on corporate performance in Egyptian public limited firms. Whole sample was divided into three sub-groups on the basis of performance and significant positive relationship was found between both variables in low performance sub-group. Hillman et al. (2007) studied presence of female directors in board as an endogenous variable in a sample of 1000 US firms and found female board member likelihood to be greatly determined by the organizational size, nature of industry and formal network of the organization. Adams and Ferreira (2009) found the negative impact of gender diversity on

financial outcomes of US firms. They attributed these negative results more robust than the previous studies claiming positive relationship between two variables as they addressed the issue of endogeneity in performance and gender diversity relationship. In the end they highlighted the importance of studying endogeneity of gender diversity in performance regressions. Wintoki et al. (2009) also highlighted the issue of endogeneity in governance and performance relationship and claimed that the past research on performance-governance relationship claiming positive or negative relationship between the two variables is biased and accredited this biasness with the unaddressed problem of endogeneity in previous literature.

In the context of microfinance, limited literature is present on the issue of endogeneity in governance and performance relationship. However, there are few studies that have studied this relationship endogenously

Hudon (2006) studied the relationship between MFI management and performance by using an un-weighted mean of four management indicators namely as a response variable. Results suggested that MFIs having greater outstanding loans are better managed. Mori and Mersland (2014) found significant impact of stakeholders on boards on the overall structure of boards and organizational performance. Both funders i.e. donors and creditors were associated with small sized boards while presence of employees on boards was associated with larger board size. Results also suggested the presence of one-tier board structure in MFIs having customers or creditors as board members. Strom et al. (2014) answered the question whether female leadership in MFIs improves their governance and financial performance and found the presence of weaker governance mechanism and improved performance in MFIs having female leadership.

Previous researches claim the results of governance-performance relationship to be biased because of the endogenous nature of both variables. As the major source of endogeneity is reverse causality so the relationship of corporate governance and performance runs in both directions. Thus, as the social performance of firms is determined by the corporate governance practices, in the same way corporate governance mechanism of firms must also be determined by their social performance. Therefore, this study focuses on the issue of endogeneity and studies the impact of social performance of MFIs on their corporate governance mechanism.

The Construction of Corporate Governance Index (CGI)

Prior studies provide evidence of the link between corporate governance practices and performance in microfinance (Mersland and Strom, 2008; 2009; Hartarska and mersland, 2012;

Tchuigoua, 2010; Aboagye and Otieku, 2010; Thrikawala et al. 2013; Galema et al. 2012; Bassem, 2009; Polanco, 2005; Hartarska and Nadolnyal, 2007; Coleman and Osei, 2008; Manderlier et al. 2009; Boehe and Cruz, 2013; Mori and Mersland, 2014; Strom et al. 2014). However, all these studies provide separate investigation of different characteristic of corporate governance and ignore their combined effect which is considered more effective approach (Gompers et al. 2003; Bebchuk et al. 2008). Chen et al. (2007) highlighted the importance of combined measure of all corporate governance variables by pointing out that certain characteristic of corporate governance may complement other characteristic or may actually be a proxy for some other characteristic. Based on the above literature, we construct an index of seven corporate governance variables, related to leadership and ownership dimensions, from the perspective of microfinance sector of Asia.

Board Size: Small board size is considered efficient control mechanism because when number of director increases beyond seven or eight, their performance decreases (Jensen, 1993). According to Lipton and Lorsch (1992), when board size increases beyond ten members, it becomes difficult for all members to express their opinions. In the perspective of microfinance, board size of seven to nine members is considered ideal and five to eleven members is considered effective (council of microfinance equity funds, 2012). Hartarska and Mersland (2012) found evidence of improved performance in MFIs with board size of up to nine members. Therefore, we measure this indicator as value equals 1 if the board size is between seven to nine members and 0 otherwise.

Presence of Female BODs: Female presence in boards is thought to be linked with increased MFI performance (Bassem, 2009) as women directors processes managerial skills like public relations, human resource and communication skills than operating and marketing skills (Thrikawala et al. 2013). Presence of gender diversity on boards also indicates that boards have broader perspective (council of microfinance equity funds, 2012). This argument can also be supported by resource dependence theory. Adams and Ferreira (2009) found evidence of increased monitoring activities in firms having more gender diversity in their boards. This variable is measured as value 1 if MFI has female presence in board, 0 otherwise.

Board Qualification: According to resource dependence theory, board acts as a resource provider for a firm in the form of human capital and relational capital (Pfeffer and Salancik, 1978; Hillman and Dalziel, 2003). Qualified and experienced directors bring skills like banking

and finance, legal knowledge, community developments, social skills along with the information about the target market into the MFIs. Manderlier et al. (2009) considered board to be qualified enough if they had enough experience and knowledge in the field of microfinance. Presence of qualified directors is linked with increased MFI performance (CGAP Appraisal guide for MFIs, 2007; 2008; council of microfinance equity funds, 2012). Thus, board qualification is measured as value 1 if board has experience and knowledge in microfinance, 0 otherwise.

Local Directors: Presence of international directors is linked with the improved performance of firms in conventional financial institutions (Oxelheim et al. 2003). This may be because international directors bring superior business practices in those firms and are better equipped with the required skills. However in the context of MFIs, presence of international directors on board is linked with the increased costs hence reducing the financial performance (Mersland et al. 2009). In MFIs, local directors are better equipped with the information of the local market trends which MFI has to serve. Thus, we measure this indicator as value equals 1 if board has local directors, 0 otherwise.

CEO/Chairman Duality: Two-tier board structure is considered more effective than one-tier structure in MFIs because when both CEO and board chair positions are separated, it reduces the conflict between management and board hence increasing the performance (Coleman and Osei, 2008). When the roles of CEO and chairman of the board are merged, then the CEOs have more power and freedom in decision making which could lead to more risky decisions (Galema et al. 2012). Thus, CEO duality could mean lack of independent board in an institution which has been linked with worse financial and social performance (Hartarska, 2005; Coleman and Osei, 2008). We measure CEO/Chairman duality indicator as value 1 if CEO and chairman roles are separated, 0 otherwise.

Female CEO: Boehe and Cruz (2013) found evidence of improved performance in MFIs having more female members. Many MFIs in Asia that work with the mission of women empowerment mandate could benefit by bringing female membership at all levels of the management including its executive level (Campion et al. 2008) as female CEO is better able to gather information from females then a male CEO (Mersland and strom, 2009). Even in sectors other than microfinance, presence of females in the top management team has been linked with the improved performance in the literature (Welbourne, 1999). Therefore, we define this indicator as value 1 if MFIs CEO is female, otherwise 0.

Ownership Type: Many policy advocates in microfinance calls for the transformation of NPOs into more profit oriented shareholder firms because they could be better governed by the banking authorities (Jansson et al. 2004; Ledgerwood and White, 2006; Campion and White, 2001; Lauer 2008; Mersland, 2009). There are some benefits of regulation in SHFs on outreach and sustainability as regulated MFIs or SHFs offer variety of services in addition to lending and also collect savings which is linked with the better scope of outreach of the MFIs (Hartarska and Nadolnyak, 2007; Lauer 2008). Servin et al. (2012) proposed SHFs to be more technically efficient than the NPOs at both inter-firm and intra-firm level. We measure ownership type indicator as value 1 if MFI is a SHF, 0 otherwise.

CGI is used as a proxy for overall corporate governance mechanism of MFIs. Each variable included in CGI is given value equal to 1 for the characteristic that is considered to be effective, for the overall performance of MFIs, 0 otherwise. Index is calculated by the sum of all indicators values. Maximum index value is 7 indicating effective governance mechanisms while lowest index value is 0 indicating weakest governance mechanisms in MFIs. Table 1 shows the brief description of the indicators used for the construction of CGI for MFIs.

Table 1
Description of corporate governance indicators

Indicator	Description
Board Size	Value equals 1 if the board size is between seven to nine members and 0 otherwise.
Presence of Female BODs	Value equals 1 if female directors are present in board, 0 otherwise.
Board Qualification	Value equals 1 if board has enough experience and knowledge in microfinance, 0 otherwise.
Local Directors	Value equals 1 if board has local directors, 0 otherwise.
CEO/Chairman duality	Value equals 1 if CEO and chairman roles are separated, 0 otherwise.
Female CEO	Value equals 1 if CEO of MFI is female, otherwise 0.
Ownership type	Value equals 1 if MFI is a SHF, 0 otherwise.

2. METHODOLOGY

3.1. Sample and Data

Microfinance sector in Asia was originated with the mission to offer financial services to the poorest which had been excluded from the conventional financial services. The region is the

main recipient of microfinance, and given its vast population, also has the largest number of poor households in the world. In 2010, about 63 percent of the world's extreme poor lived in East Asia and the Pacific (246 million) as well as in South Asia (507 million)[1]. This population forms an immense client base for microfinance, which has not gone unnoticed. Therefore we focuses on the microfinance sector of Asia as it can play an important role in financial and economic development of a region.

Our data for this study primarily comes from the MIX market[2]website. Where around 1044 MFIs located in 18 countries of Asia i.e. Armenia, Azerbaijan, Bangladesh, Cambodia, China, Georgia, India, Indonesia, Jordan, Kazakhstan, Kyrgyzstan, Nepal, Pakistan, Philippines, Russia, Sri-Lanka, Tajikistan and Vietnam, have shared their data. Out of these, 418 MFIs have given a rating of 4 diamonds and above by the MIX market based on the transparency and reliability of the data shared. Our final sample reduces to a total of 173 MFIs in 18 Asian countries for the period of five years from 2007 to 2011 because only MFIs rated by the third party rating agencies have been included. Moreover, data for variables used in the construction of CGI index has been extracted from the rating reports and the annual reports of respective MFIs. .Those rating reports have been accessed from the Rating Fund website[3]. Data for Human Development Index (HDI) has been collected from United Nations development Program (UNDP) website[4] while data for GDP per capita is taken from the World Bank website[5].

3.2. Social Performance

Social performance of MFIs of Asia is measured on the basis of two dimensions; one dealing with final outcome i.e. outreach and second dealing with the internal process of MFIs i.e. female employees in an MFI. Females in many rural and conservative areas especially in Asia do not

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[1]World Bank, "The State of the Poor: Where Are the Poor….. What is the current profile of the World's poor?" (accessed April 2013).

[2]MIX (Microfinance Information Exchange) market is a database for microfinance data where all microfinance institutions and supporting organizations share their data. MIX market plays an important role in improving transparency of this sector. www.mixmarket.org

[3]www.ratingfund2.org Contains risk assessment reports of 383 MFIs from 73 countries. These MFIs have been rated by five microfinance rating agencies; Microfinanza, Planet Rating, Crisil, MicroRate and M-Cril which are considered as official rating agencies by CGAP (Consultative group to assist the poor).

[4]www.hdr.undp.org/en/statistics/hdi Data collected on Jan 15th 2014
[5]www.worldbank.org Data collected on Jan 15th 2014

feel comfortable in speaking to males. Campion et al. (2008) considered it as a barrier for MFIs in achieving their social mission as most of the loan officers in MFIs are male members. So, MFIs should consider this operational issue and should hire more female loan officers which could target women easily. Female loan officers to Total loan officers is used as a proxy for female employees in MFIs

Outreach of MFIs is measured on the basis of their depth and scope of services and their loan size. Depth of outreach measures the extent to which MFI reaches the poorest of the economy that have no access to financial sector of the economy (Woller, 2006). Usually women and people living in rural areas are considered as poor who have no access to financial services offered by the commercial sector. Strom et al. (2014) used gender bias and rurality bias as indicators of outreach. Depth of outreach is measured as the ratio of women borrowers to total borrowers and borrowers located in the rural areas as compared to total borrowers (Rauf and Mahmood, 2009; Mersland and Strom, 2008).

Diversity of products offered by an MFI is termed as its scope of outreach (Woller, 2006; Schreiner, 2002). Schreiner (2002) defined scope between products as offering lending and savings services both. MFI offering saving services to its clients have better outreach than MFI offering only lending services. Ratio of women savers to total savers is used to measure the scope of outreach (Rauf and Mahmood, 2009). Type of savings offered by the MFI also determines its scope of outreach. Voluntary saving services are preferred over compulsory saving services by the MFI and shows better outreach (Woller, 2006). Ratio of voluntary deposit accounts to total deposit accounts is also used as an indicator of scope of outreach.

Loan size is another measure of outreach as it can be used as a proxy for assessing the reach of MFIs to the poor. This can be done by taking into account the average outstanding loan (AOL). Average outstanding loan and ratio of AOL to per capita GNI were used as indicators of loan size by Polanco, (2005); Christen, (2001) and Christen et al. (1995). This study measures loan size as ratio of AOL to per capita GNI.

3.3. Control Variables

Literature provides evidence that larger the age of a firm, better will be its corporate governance practices (Black et al. 2006). This may be because older firms have more experience and have had more time to improve their internal governance. Black et al. (2006) measured age of a firm as Ln (years). Mori and Mersland (2014) and Strom et al. (2014) measured age of an MFI as

number of years of operation of MFI. Crombrugghe et al. (2008) used log of years as a proxy for age of MFIs. This study measures age as log of years since establishment of MFIs.

According to Black et al. (2006) size of a firm is a variable other than performance that could affect the corporate governance choices. They measured firm size as Ln (assets). Mori and Mersland (2014) measured size of MFIs as logarithm of assets. Strom et al. (2014) used total assets as a proxy for size of MFI. This study uses log of total assets of an MFI as a proxy for size of institution.

Risk of a firm is also an important determinant of the effectiveness of governance system in firms (Black et al. 2006). Mersland and Strom (2009); Hartarska and Mersland (2012) and Mersland et al. (2008) used portfolio risk as an indicator of overall risk of MFI measured as portfolio at risk 30 days (PAR 30). This study measures risk of MFI as PAR 30. PAR 30 is defined as the value of all outstanding loans considered at risk because payments are 30 days past due.

Black et al. (2006) considered regulatory status as the most important indicator affecting governance in firms. Hartarska (2005) included 'supervised' as an external control variable in governance performance relationship and measured it as a dummy with value 1 if MFI was supervised by banking authority, 0 otherwise. In this study regulatory status is measured as a dummy having value 1 if MFI is regulated by a banking authority, 0 otherwise.

MFIs offer many types of lending services to its customers like group lending, individual lending etc. Cull et al. (2007) defined three types of MFIs on the basis of their lending methodology; individual lenders, group lenders and village banks. Mersland and Strom (2009) considered loan methodology as an important dimension in MFIs governance performance studies. They measured lending methodology as a dummy with value 1 if MFI offered mainly individual lending services. This study uses three dummies for lending methodology variable; first MFIs offering individual lending services, second MFIs offering group lending services and third MFIs offering both types of lending services.

According to legal structure MFIs can be classified into five types; banks, rural banks, NBFIs, NGOs and credit unions or cooperatives (CGAP Appraisal guide for MFIs, 2007 and 2008). Governance practices differ in MFIs according to their legal status (council of microfinance equity funds, 2012). For example legal status of an MFI determines the ownership structure of MFIs and who has the decision making power in them (Lapenu and Pierret, 2006). So, there is a

need to control for the type of MFIs according to their legal status. This study measures legal status as five dummy variables of banks, rural banks, NBFIs, NGOs and credit unions.

Human development index (HDI) and GDP per capita are used as country controls as this study revolves around the MFIs of Asia and there is a need to control for country specific effects. Human development index is a UNDP indicator covering standard of living, knowledge and life expectancy. GDP per capita is a world development indicator calculated as total output of economy divided by number of people in an economy. Mersland and Strom (2009) used HDI to control country specific effects in their study of corporate governance and performance. Strom et al. (2014) used HDI and GDP per capita to control for country specific changes.

Following hypotheses are proposed to study the impact of social performance on overall corporate governance mechanism of MFIs:

H1: Social performance has significant impact on corporate governance mechanism of MFIs.

$CGIi^* = Xi'\beta + Yi'\gamma + \varepsilon i$

Where,

$Xi'\beta = \beta_1 WTB + \beta_2 RTB + \beta_3 WTD + \beta_4 VTD + \beta_5 AOL\ per\ capita\ GNI + \beta_6 FTL$

$Yi'\gamma = \gamma_1 Log\ assets + \gamma_2 Log\ age + \gamma_3 PAR\ 30 + \gamma_4 GDP/capita + \gamma_5 HDI + \gamma_6 RS1 + \gamma_7 LM1 + \gamma_8 LM2 + \gamma_9 LS1 + \gamma_{10} LS2 + \gamma_{11} LS3 + \gamma_{12} LS4$ $\qquad(1)$

H1a: Depth of outreach has significant impact on corporate governance mechanism of MFIs.

$CGIi^* = Xi'\beta + Yi'\gamma + \varepsilon i$

Where,

$Xi'\beta = \beta_1 WTB + \beta_2 RTB$

$Yi'\gamma = \gamma_1 Log\ assets + \gamma_2 Log\ age + \gamma_3 PAR\ 30 + \gamma_4 GDP/capita + \gamma_5 HDI + \gamma_6 RS1 + \gamma_7 LM1 + \gamma_8 LM2 + \gamma_9 LS1 + \gamma_{10} LS2 + \gamma_{11} LS3 + \gamma_{12} LS4$ $\qquad(2)$

H1b: Scope of outreach has significant impact on corporate governance mechanism of MFIs.

$CGIi^* = Xi'\beta + Yi'\gamma + \varepsilon i$

Where,

$Xi'\beta = \beta_1 WTD + \beta_2 VTD$

$Yi'\gamma = \gamma_1Log\ assets + \gamma_2Log\ age + \gamma_3PAR\ 30 + \gamma_4GDP/capita + \gamma_5HDI + \gamma_6RS1 + \gamma_7LM1 + \gamma_8LM2 + \gamma_9LS1 + \gamma_{10}LS2 + \gamma_{11}LS3 + \gamma_{12}LS4$ (3)

H1c: Loan size has significant impact on corporate governance mechanism of MFIs.

$CGIi^* = Xi'\beta + Yi'\gamma + \varepsilon i$

Where,

$Xi'\beta = \beta_1AOL/GNI$

$Yi'\gamma = \gamma_1Log\ assets + \gamma_2Log\ age + \gamma_3PAR\ 30 + \gamma_4GDP/capita + \gamma_5HDI + \gamma_6RS1 + \gamma_7LM1 + \gamma_8LM2 + \gamma_9LS1 + \gamma_{10}LS2 + \gamma_{11}LS3 + \gamma_{12}LS4$ (4)

H1d: Presence of female loan officers has significant impact on corporate governance mechanism of MFIs.

$CGIi^* = Xi'\beta + Yi'\gamma + \varepsilon i$

Where,

$Xi'\beta = \beta_1FTL$

$Yi'\gamma = \gamma_1Log\ assets + \gamma_2Log\ age + \gamma_3PAR\ 30 + \gamma_4GDP/capita + \gamma_5HDI + \gamma_6RS1 + \gamma_7LM1 + \gamma_8LM2 + \gamma_9LS1 + \gamma_{10}LS2 + \gamma_{11}LS3 + \gamma_{12}LS4$ (5)

Where

*CGI=Corporate governance index, PAR 30=portfolio at risk 30 days, HDI= human development index, RS1=*Regulated MFIs*, LM1= Individual lending, LM2=Group lending, LS1=Banks, LS2 =Rural banks, LS3=NBFIs andLS4=NGO.*

4. ANALYSIS

4.1. Descriptive statistics

CG Index is a main dependent variable of the study and is composed of 7 corporate governance indicators namely board size, female directors, international directors, board qualification, female CEO, CEO/chairman duality and ownership type. CGI is an ordinal variable whose values could range from 0 to 7. The description of CGI is shown in table II.

Table II
Description of corporate governance index

CGI	Frequency	Percent	Cum.
1	5	0.58	0.58
2	40	4.62	5.2
3	140	16.18	21.39
4	270	31.21	52.6
5	265	30.64	83.24
6	125	14.45	97.69
7	20	2.31	100
Total	865	100	

The descriptive analysis of all predictors and control variables involved in this study is shown in table III. Descriptive statistics shows that the average age of the microfinance sector is only 12 years which proves that the microfinance sector of Asia is still very young and is in its early stages. However one MFI in our sample is as old as 39 years. Minimum value of 0 indicates that MFIs established in year 2007 have also been included in our sample. This study uses log of years since establishment as predictor of the age of MFI. The average size of the microfinance sector of Asia is 90911 dollars as measured by the mean of total assets.

The values of average women to total borrowers and women to total depositors are 0.72 and 0.323 respectively which shows that 72% borrowers and 32.3% depositors of all selected MFIs are women. Minimum value of 0 indicates that some MFIs in our sample have no female borrowers or depositors while maximum value of 1 indicates that some MFIs in Asia target only female clients. Average rural to total borrowers of 0.594 indicates that 59.4% clients of the MFIs included in sample belong to rural areas. Some MFIs in our sample do not target rural clients as can be seen from the minimum value of 0 while some MFIs are the specialized rural banks that only target population living in rural areas as can be seen from maximum value of 1. The mean of voluntary to total deposit a/c is 0.248 which means that 24.8% of all deposit accounts in selected MFIs of Asia are voluntary. Some MFIs only offer compulsory saving services as can be seen by the minimum value of 0 while some MFIs offer only voluntary savings services as can be seen by maximum value of 1. The means of female to total loan officers is 0.19. This shows that on average female loan officers in our sample are only 19% of total loan officers. Minimum value of 0 indicates that some MFIs do not hire any female employees while in some MFIs all loan officers are female. Standard deviation for female to total loan officers is 0.26. AOL/per capita GNI have a mean value of 0.29 with the minimum value of .023 and maximum value of

1.02. Lower AOL/per capita GNI indicate small loan size and better outreach. Standard deviation of AOL/per capita GNI is 0.24.

Table III
Descriptive statistics summary of the variables

	Descriptive Statistics						
	Measurement	**N**	**Min.**	**Max.**	**Mean**	**Median**	**Std. Dev**
Women to total borrowers (WTB)	Number of women borrowers / Number of total borrowers	865	.0000	1.0000	.7218	.8490	.3001
Rural to total borrowers (RTB)	Number of rural borrowers / Number of total borrowers	865	.0000	1.0000	.5942	.6500	.3409
Women to total depositors (WTD)	Number of women depositors/ Number of total depositors	865	.0000	1.0000	.3239	.0000	.4276
Voluntary to total deposit accounts (VTD)	Number of voluntary deposit accounts/ Number of total deposit accounts	865	.0000	1.0000	.2482	.0000	.3983
AOL/per capita GNI	Average outstanding loans (AOL) / Per capita GNI	865	.0235	1.0287	.2932	.2030	.2455
Female to total loan officers (FTL)	Female loan officers / Total loan officers	865	.0000	1.0000	.1927	.0733	.2618
Age (years)	Number of years since establishment	865	.0000	39	11.9710	11	7.1349
Log age	Log of years since establishment	865	.0000	1.59	.9882	1.0414	.3083
Total assets in 1000s ($)	Total assets in 1000s	865	.0000	51223	90911	15043	3.4580
Log assets	Log of total assets of MFI	865	.0000	9.7095	7.1948	7.177335	.7990
Portfolio at risk (PAR)	Value of loans outstanding whose payments are past 30 days due	865	.0000	7.1143	.0682	.015700	.2967
Human	Index of human	865	.4400	.7840	.6001	.551000	.0944

development index (HDI)	living standard, life expectancy and education						
GDP/Capita	Total output of an economy / number of people in an economy	865	1687	22502	5943.7134	4399.8515	4720.6755
Valid N		865					

75% MFIs of our sample are regulated by some regulatory or banking authority while remaining 25% are non-regulated.12% of our sample is composed of regular banks, 6% rural banks, 47% non-banking financial institutions, 31% NGOs and 4% is composed of credit unions. 21% MFIs of Asia included in our sample offer individual lending, 23% group lending and remaining 56% offer both kinds of lending services.
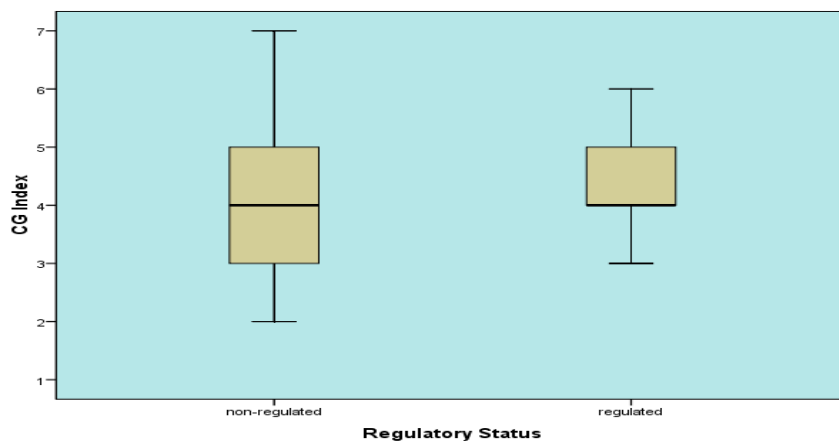

Figure 1:*Corporate governance according to the regulatory status*
Source: Based on authors self-calculations

Figure 1 depicts the overall corporate governance mechanism of MFIs of Asia according to their regulatory status. Regulated MFIs have a better system of overall corporate governance as compared to the non-regulated MFIs. The value of median is same for both regulated and non-regulated MFIs i.e. 4 however the greater variation in the non-regulated MFIs depicts the overall better corporate governance in regulated MFIs. Variance in corporate governance index for regulated MFIs is 1.29 compared to the variance of 1.47 for non-regulated MFIs. Minimum value of corporate governance index for regulated MFIs is 3 compared to the minimum value of

2 for non-regulated MFIs, showing that all regulated MFIs have overall corporate governance index score of at least 3.

Figure 2:*Corporate governance according to the legal status*
Source: Based on authors self-calculations

Figure 2 depicts the overall corporate governance mechanism in MFIs of Asia according to their legal status. Corporate governance index is used as a proxy for overall corporate governance system and the highest corporate governance index score of 5 for both regular banks and rural banks indicate that both have almost same level of corporate governance system. However the value of variance in CG Index for regular banks is 0.920 and for rural banks is 1.469. The value of variance in CG Index for regular banks is low compared to that of rural banks which shows that regular banks are the highest performing MFIs in terms of corporate governance system. The lowest performing MFIs are the credit unions having the median of 4 with the variance of 1.176.
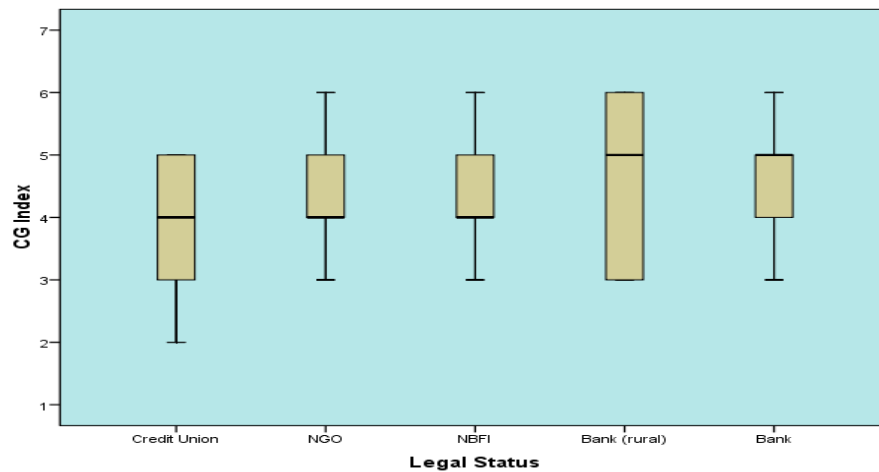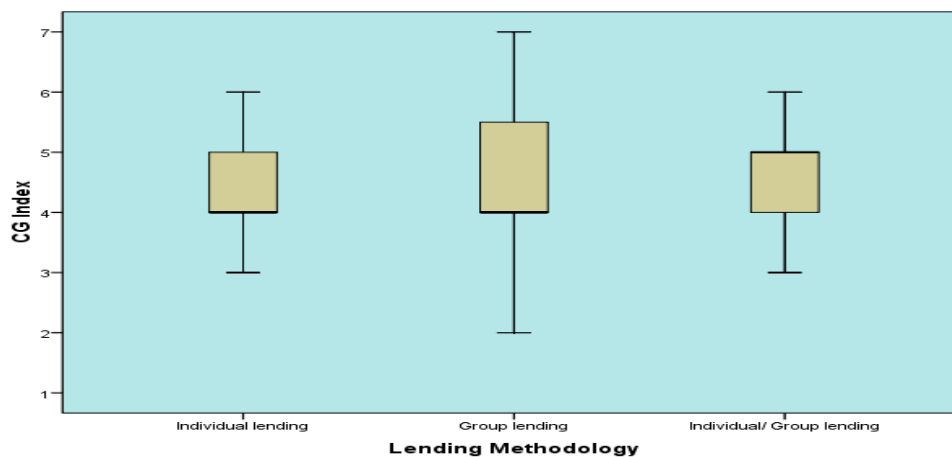
Figure 3:*Corporate governance according to lending methodology*
Source: Based on authors self-calculations

Figure 3 depicts the overall corporate governance mechanism of MFIs according to the lending type offered by them. MFIs that offer both individual and group lending services have the best corporate governance system as can be seen by the highest CG Index score of 5. MFIs that offer one type of lending service that is either individual or group have CG Index score of 4. However the variation in group lending methodology is more as the variance of CG Index for individual lending is 0.999 and for group lending is 1.407. MFIs that offer both kinds of services have the best system of corporate governance.

4.2. Empirical analysis

4.2.1. Correlation

Table IV provides the correlation matrix of social performance variables, control variables and all categorical variables with response variable. There is highly positive and significant correlation between WTB and CGI which shows that MFIs that target more female clients and work with the mission of women empowerment have to have better governance systems in their setup as they target underprivileged members of the society. These MFIs hire more female employees as females are better equipped with the women client needs hence significant positive correlation is seen between WTB and FTL. RTB and FTL are also highly significantly positively correlated with CGI which shows that MFIs that target villages and rural areas and hire more female loan officers in those areas have better governance systems. Negative and highly significant correlation between AOL per capita GNI and CGI also proves the fact that MFIs which are more socially oriented make more efforts for better governance system as negative AOL per capita GNI means small sized loans and better outreach. These results are in lined with the findings of Strom et al. (2014) who found negative correlation between average loan and corporate governance variables even if their correlation was not significant. Results also shows positive correlation between WTD and VTD with CGI but this relation is not significant. Significant correlation is also present in almost all social performance indicators with each other i.e. WTB, RTB, WTD, VTD, AOL per capita GNI and FTL which shows the fact that all of these indicators are different dimensions of one variable i.e. social performance. There is positive and significant correlation of log year with social performance indicators. This shows that MFIs

which are more mature and have more experience have more chances of working with the social objectives. Table IV is attached in appendix.

4.2.2. Regression

In order to analyze the endogeneity in corporate governance and performance relationship in MFIs of Asia, regression analysis is carried out in two parts; the first part focuses on the impact of corporate governance mechanism of MFIs on their social and financial performance while the second part analyzes the reverse-causality in governance and performance relationship by studying the relationship in reverse direction i.e. the impact of social and financial performance on corporate governance mechanism of MFIs.

4.2.2.1. Impact of Corporate Governance Mechanism on social Performance

Generalized Least Square (GLS) models for panel data are used for analyzing the impact of corporate governance mechanism on MFIs social performance. Table V shows the GLS model results for the impact of CGI on social performance. Table V is attached in appendix A.

By employing random effects model, it is seen that CGI has insignificant impact on outreach indicators of RTB, WTD and VTD. The insignificant impact of corporate governance mechanism on outreach of MFIs shows that good governance practices in MFIs do not necessarily mean the social orientation of those MFIs. Outreach of MFIs does not improve with better governance practices. However, WTB and loan size are significantly determined by the corporate governance of MFIs at 10% significance level. The significant results of FTL also show that MFIs having good governance practices hire more female loan officers.

The insignificant results many social performance variables with the corporate governance mechanism of MFIs could be attributed to the endogenous nature of governance and social performance relationship. As reverse-causality may exist in this relationship so, the social performance of MFIs may determine the governance practices in those MFIs. In this regard, next section studies the impact of MFIs social performance on their corporate governance mechanism.

4.2.2.2. Impact of Performance on Corporate Governance Mechanism

Corporate governance index (CGI) constructed in this study is an ordinal variable with values from 0 to 7 in ascending order. The models for ordered response variable are the most suitable option for this kind of response variable (Wooldridge, 2010). The ordinal variable CGI is related

to the continuous latent variable CGI* which measures corporate governance mechanism of MFIs. The linear model for CGI* is equal to

$$CGIi^* = Xi'\beta + \varepsilon i$$

Where, $\beta = k \times 1$ and Xi' does not contain a constant.

The value of CGI* is unknown unless it crosses certain threshold points ($\alpha 1, \alpha 2, \alpha 3, \alpha 4, \alpha 5, \alpha 6$).

Where,

CGI = 1   if $\alpha - \infty < CGI^* \leq \alpha 1$
CGI = 2   if $\alpha 1 < CGI^* \leq \alpha 2$
CGI = 3   if $\alpha 2 < CGI^* \leq \alpha 3$
CGI = 4   if $\alpha 3 < CGI^* \leq \alpha 4$
CGI = 5   if $\alpha 5 < CGI^* \leq \alpha 6$
CGI = 6   if $\alpha 6 < CGI^* \leq \alpha \infty$

Gruszczynski (2006) used ordered logit model for estimating relationship between corporate governance and firm performance for ordered response variable; firm CGI ratings. This study also estimates ordered logit model for the ordinal variable CGI for explaining the relationship between corporate governance and social performance in MFIs of Asia.

H1: Social performance has a significant impact on corporate governance mechanism of MFIs.

Table VI provides ordinal logit regression results for social performance and CGI. Model 1 measures the aggregate impact of all social performance indicators on CGI in the presence of control variables. Models 2 to 5 measure the individual effect of each social performance indicator on CGI by controlling the effect of control variables. The values of chi-square shows that models depicted in table VI are significant at 1% level of significance which indicates that models valid.

Variable WTB has a positive and significant relationship with CGI at 10% level of significance in model 1. This shows that MFIs which are more socially oriented and work with the mission of women empowerment are more likely to have better governance mechanism in their setups. We

attribute this finding of our research to the fact that the governance structure of institution is greatly determined by its strategic vision (Lapenu and Pierret, 2006) and as most of the MFIs of Asia work with the mission of women empowerment female leadership is preferred over male leadership because of the communication problems faced by female members of Asian society. Female leadership reduces information asymmetry problems hence enhances overall governance system in MFIs (Mersland and Strom, 2009).

RTB also has a positive relationship with CGI and this relationship is highly significant at 1% significance level which shows that MFIs targeting specifically rural population are more likely to have better governance systems. This could be because MFIs that target poor people living in local rural areas are more prone to credit and default risks, hence these MFIs need better monitoring and control practices in their operations to minimize those risks and to tap into local market networks (Mersland and Strom, 2009). MFIs having more local operations targeting local areas are also able to monitor and control those operations more effectively on day to day basis because of better access to local markets and reduced costs like travelling expenditure etc. (Lapenu and Pierret, 2006). These results are also in lined with the results of Black et al. (2006) who found that riskier firms need more strict monitoring systems hence they have better governance present in them and the MFIs serving poorest are more prone to default and credit risks. Model 1.1 measures the individual effect of depth of outreach on CGI in the presence of control variables. Results of WTB have improved a lot from 10% significance level to 1% significance level in model 2 as WTB was highly correlated with all other social performance indicators as was seen in correlation table IV.

Table VI
Ordered logit regression results for models 1 to 5

Models	1	2	3	4	5
Corporate Governance Index (CGI)					
WTB	.6013288*	1.166465***			
	(1.91)	(4.05)			
RTB	.5690231***	.5479653***			
	(2.96)	(2.89)			
WTD	.3034306		.2648953		
	(1.60)		(1.43)		
VTD	.0766102		-.0107834		
	(0.42)		(-0.06)		
AOL/GNI	-.9761584***			-1.018179***	

				(-3.48)	
FTL	.9321609***				1.120289***
	(3.38)				(4.20)
HDI	1.498109	2.233018*	-.0502281	.0766121	-.7681502
	(1.12)	(1.70)	(-0.04)	(0.07)	(-0.67)
GDP/capita	-.0000122	1.60e-06	.0000134	-1.47e-06	-6.64e-06
	(-0.56)	(0.07)	(0.63)	(-0.07)	(-0.31)
PAR 30	-.1437722	-.0189526	-.0071208	-.0488818	-.1220684
	(-0.75)	(-0.10)	(-0.04)	(-0.26)	(-0.64)
Log age	-.1042813	.0725382	.0057897	.1415379	-.0262584
	(-0.39)	(0.28)	(0.02)	(0.55)	(-0.10)
Log assets	.0502368	.0718315	.1065665	.0237851	.092465
	(0.48)	(0.72)	(1.04)	(0.23)	(0.92)
Regulated MFIs	.0490328	.1115976	.0128378	.1676793	-.057594
	(0.27)	(0.64)	(0.07)	(0.96)	(-0.33)
Individual lending	-.6109903***	-.6666988***	-.7225913***	-.6701764***	-.6739335***
	(-3.63)	(-4.02)	(-4.37)	(-4.06)	(-4.09)
Group lending	-.083115	.0242642	.1421273	-.0130463	.008446
	(-0.45)	(0.14)	(0.78)	(-0.07)	(0.05)
Banks	.8162505**	.8340473**	.6182516	.6901623*	.4235026
	(2.05)	(2.12)	(1.60)	(1.80)	(1.10)
Banks (rural)	.6129386	.6920464	.6328953	.6687682	.4640614
	(1.42)	(1.61)	(1.49)	(1.57)	(1.09)
NBFIs	.3435645	.2262596	.3501507	.2888865	.1323338
	(0.95)	(0.65)	(0.98)	(0.85)	(0.39)
NGOs	-.1786913	-.0129322	.0715975	-.0541952	-.1979839
	(-0.50)	(-0.04)	(0.20)	(-0.16)	(-0.57)
Threshold points					
α1	-3.311316	-1.969053	-4.125662	-4.96892	-5.00189
α2	-1.06224	.2829951	-1.873384	-2.716911	-2.747117
α3	.5706656	1.909233	-.2621513	-1.104316	-1.127872
α4	2.050664	3.366898	1.180197	.3436025	.3229575
α5	3.661712	4.949852	2.736866	1.911931	1.895194
α6	5.888524	7.150653	4.905108	4.092039	4.087967
Log likelihood	-1308.408	-1319.2335	-1329.9366	-1324.8965	-1322.0034
LRChi-square	80.53***	58.88***	37.47***	47.55***	53.34***
	(0.0000)	(0.0000)	(0.0006)	(0.0000)	(0.0000)

*** Statistical significance at 1% level, ** Statistical significance at 5% level, * Statistical significance at 10% level

Omitted variables are non-regulated MFIs, MFIs with individual and group lending, and credit unions

The results of WTD and VTD show positive and insignificant relationship of scope of outreach and corporate governance system in MFIs which shows that MFIs offering diversity of products may not necessarily have better governance system than those offering few products and services. These results are also consistent when the effect of WTD and VTD is seen individually on CGI in model 3 by controlling the effect of control variables. We attribute these contrasting results for the significance of depth and scope of outreach to the small average age of microfinance sector of Asia i.e. 12 years as can be seen in table III. As most of the MFIs are

young entrepreneurial firms, optimal level of governance has not settled in this sector (Strom et al, 2014).

The results of AOL per capita GNI are negative and highly significant at 1% significance level which shows that the MFIs that offer small sized loans are more likely to have better governance mechanism. As smaller sized loans are linked with better outreach to poor (Crombrugghe et al. 2008), so the MFIs working with social objectives are more likely to have better governance. This maybe because smaller sized loans are offered to mostly poor in the group liability format of lending methodology which is used by MFIs as a cure for increased repayment and credit risk in this sector as smaller loans offered in groups are easier to monitor and keep track of (Mersland and Strom, 2009). Group based lending also brings monitoring and control by group members on each other as default of one member can affect whole group (Hermes and Lensink, 2007). The results of AOL per capita GNI are same in both models 1 and 4 i.e. negative and statistically significant at 1% significance level. These results are in lined with the results of lending methodology which again shows that MFIs offering only individual lending services are less likely to have good governance system than MFIs offering group or both types of lending services. These results are consistent in all models from 1 to 5 with individual lending being negative and highly significant at 1% significance level. Another reason for good governance in group lending type could be of reduced information asymmetry problems in those MFIs since groups are arranged in the manner that people living in closer vicinity are arranged into one group. These people are better informed and have social ties with each other (Hermes and Lensink, 2007).

The result of FTL shows positive and significant impact of presence of female employees in MFIs on their corporate governance system. These results are also consistent when the impact of FTL is checked collectively with other social performance indicators in model 1 and individually in model 5. This shows that MFIs having more female loan officers have better governance system. We attribute these findings to social mission and gender mandate of microfinance sector of Asia as most of the Asian MFIs target women clients and having female loan officers enhances their information networks about local markets and reduces information asymmetry problems (Campion et al. 2008).

Results of variable log assets are consistent in all models. Results show positive and insignificant impact of MFI size on their CGI. These findings are in lined with the findings of Black et al. (2006) even though these results are insignificant. Nevertheless consistent positive sign indicates that larger MFIs have more complex structures so they need more defined corporate governance mechanism. We attribute the insignificance of the relationship to the fact that microfinance is an infant industry still in its development stages. These results could improve with better data set covering larger time period. Legal status also shows consistent results across different models with banks having significant positive relationship with CGI. These results show that MFIs which are banks are more likely to have better governance system and we attribute these results to the larger size and complex structure of banking MFIs. As it can be seen in correlation table IV, that banks and log assets are positively and significantly correlated with each other indicating that banks are the largest of all legal types of MFIs.

5. CONCLUSION

Microfinance institutions provide financial services to the underprivileged and poor people and serve the market where traditional financial institutions fail to reach which makes the growth of this sector an essential factor in the development of the whole economy. Lack of good governance practices is considered a main obstacle in the development of microfinance sector in different policy guidelines as good governance helps microfinance institutions in protecting their social missions. In this regard this study focuses on the concept of corporate governance in microfinance and studies the relationship between social performance and corporate governance mechanism of microfinance institutions of Asia. Many previous researches claim the results of governance performance relationship from literature to be biased because of the issue of endogeneity in this relationship. As the major source of endogeneity is reverse causality, this study responds to the need of literature in this regard by studying the impact of performance on corporate governance, this relationship has never been studied in microfinance domain.

Using a panel data of 173 MFIs of Asia for a period of five years from 2007 to 2011, regression analysis of the study is carried out in two parts; first part studies the impact of corporate governance on MFIs social performance while the impact of social performance on overall corporate governance mechanism of MFIs is analyzed in the second part of the analysis. The results show that social orientation ofMFIs does not improve with good governance practices,

except smaller loan size and presence of female loan officers. The insignificant results of many social performance indicators could be attributed to the endogenous nature of governance and performance relationship as the significance of results improved when that relationship was studied in reverse direction which confirmed that endogeneity exists and there is a reverse-causality in corporate governance and performance relationship of MFIs of Asia.

Revealing results emerge from this study, which have important implications for future researches and policy makers. Depth of outreach of MFIs seems to play an important role in governance practices of MFIs which shows that MFIs which works with the mission of women empowerment and poverty alleviation have good governance practices and this finding is supported by the descriptive analysis which shows that rural banks have best governance practices compared to other legal types of MFIs. We link these findings to the increased credit risk in those clients hence; MFIs need better governance system to enter into risky market networks. Smaller loan size and presence of female loan officers also plays very important role in enhancing the governance mechanism of MFIs and this could be due to improved information networks in those MFIs.

Given the revealing results of social performance as a determinant of corporate governance practices of MFIs, policy makers and regulators should give special treatment to this sector while developing policies of corporate governance practices keeping in mind the specific nature of microfinance sector of Asia.

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APPENDIX A

Table IV
Correlation matrix of social performance and CGI

Correlation matrix (Social Performance)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1 CGI	1																					
2 WTB	.116**	1																				
3 RTB	.094**	.077*	1																			
4 WTD	.025	.262**	.053	1																		
5 VTD	.018	-.129**	-.030	.333**	1																	
6 AOL/per capita GNI	-.116**	-.462**	.091**	.056	.169**	1																
7 FTL	.151**	.137**	.040	-.060	-.030	-.133**	1															
8 HDI	-.047	-.554**	-.212**	-.392**	-.085*	.133**	.179**	1														
9 GDP/Capita	-.019	-.350**	-.220**	-.319**	-.056	-.010	.244**	.778**	1													
10 PAR 30	.000	.033	-.042	.057	.069*	-.030	.111**	-.044	-.019	1												
11 Log year	.041	.084*	.011	.326**	.215**	-.049	.118**	-.109**	-.071*	.145**	1											
12 Log assets	.088**	-.057	.064	-.009	.202**	.011	-.026	-.100**	-.099**	.038	.413**	1										
13 RS1	.045	-.177**	.038	.023	.162**	.338**	-.021	-.083*	-.050	.027	-.082*	.229**	1									
14 RS2	-.045	.177**	-.038	-.023	-.162**	-.338**	.021	.083*	.050	-.027	.082*	-.229**	-1.000**	1								
15 LM1	-.141**	-.332**	-.068*	-.020	.194**	.191**	-.053	.266**	.217**	.081*	.020	.062	.039	-.039	1							
16 LM2	.051	.354**	.089**	.022	-.065	-.337**	.132**	-.324**	-.219**	-.016	-.034	-.117**	-.224**	.224**	-.286**	1						
17 LM3	.073*	-.027	-.019	-.002	-.105**	.128**	-.068*	.055	.007	-.053	.012	.048	.158**	-.158**	-.582**	-.612**	1					
18 LS1	.057	-.333**	-.006	.016	.360**	.229**	-.032	.037	-.041	.043	.053	.412**	.173**	-.173**	.195**	-.078*	-.094**	1				
19 LS2	.044	.024	.095**	.251**	.253**	.091**	-.044	-.242**	-.112**	.035	.078*	-.101**	.142**	-.142**	-.008	-.018	.022	-.092**	1			
20 LS3	.018	-.067*	-.033	-.387**	-.330**	.152**	-.081*	.210**	.132**	-.039	-.343**	-.066	.305**	-.305**	-.128**	-.246**	.314**	-.353**	-.235**	1		
21 LS4	-.052	.319**	.022	.226**	-.104**	-.373**	.145**	-.205**	-.156**	.001	.272**	-.128**	-.488**	.488**	-.071*	.349**	-.237**	-.247**	-.165**	-.631**	1	
22 LS5	-.070*	-.051	-.071*	.127**	.182**	.002	-.028	.172**	.231**	-.016	.053	-.097**	-.086*	.086*	.179**	-.043	-.111**	-.076*	-.051	-.195**	-.136**	1

** Statistical significance at 1% level, * statistical significance at 5% level

APPENDIX B

Table V: GLS model results for impact of CGI on social performance

Models	1	2	3	4	5	6
	WTB	RTB	WTD	VTD	AOL/GNI	FTL
Constant	1.608129*** (8.60)	.5099243* (1.81)	1.327497*** (4.50)	.512312* (1.87)	.1118652 (0.64)	-.655451*** (-3.20)
CGI	.0244959* (1.80)	.0242751 (1.36)	.0097048 (0.50)	.002876 (0.17)	-.0243038* (-1.86)	.0311993** (2.27)
HDI	-1.753273*** (-6.96)	-.1993387 (-0.55)	-1.140249*** (-2.95)	-.1803308 (-0.52)	.6754496*** (2.86)	.5232556* (1.93)

GDP/capita	9.81e-06**	-.0000107	-.0000103	-3.14e-06	-.0000169***	.0000126***
	(2.26)	(-1.64)	(-1.49)	(-0.50)	(-4.20)	(2.62)
PAR	.0077074	-.0229895	.0275932	.0005047	-.0090777	.0139158
	(0.58)	(-0.76)	(0.97)	(0.02)	(-0.78)	(0.74)
Log age	.0578983*	-.040787	.2065381***	.1101864*	-.0066989	.1076459**
	(1.74)	(-0.66)	(3.34)	(1.77)	(-0.23)	(2.58)
Log assets	.0058859	.0227843	-.0199301	.0007607	-.008363	.0053304
	(0.52)	(1.01)	(-0.90)	(0.03)	(-0.84)	(0.36)
Regulated MFIs	-.0745452*	.0101672	.1071663*	.1113854**	.1113864***	.0811113*
	(-1.74)	(0.18)	(1.74)	(2.09)	(2.70)	(1.87)
Individual lending	-.0862812**	.007557	-.0195406	.0900036*	.0491073	-.0427269
	(-2.05)	(0.14)	(-0.32)	(1.72)	(1.21)	(-1.00)
Group lending	.0817765*	.0335828	-.1549557**	-.0210622	-.1071369***	.1156256***
	(1.94)	(0.60)	(-2.56)	(-0.40)	(-2.64)	(2.70)
Banks	-.2635213***	-.0098372	-.4045323***	-.0257579	.0873381	.0644437
	(-2.84)	(-0.08)	(-3.02)	(-0.22)	(0.98)	(0.68)
Banks (rural)	-.1455639	.1171267	-.1591804	-.0175485	.0703162	.0933298
	(-1.38)	(0.84)	(-1.05)	(-0.13)	(0.69)	(0.87)
NBFIs	-.0146176	.0200027	-.5582575***	-.4951578***	-.0078087	.0670253
	(-0.17)	(0.18)	(-4.63)	(-4.72)	(-0.10)	(0.79)
NGOs	.0095301	.0226998	-.2634626**	-.4028607***	-.0970882	.1725926**
	(0.11)	(0.20)	(-2.15)	(-3.80)	(-1.18)	(1.99)
Wald-Chi2	172.83***	20.30*	131.41***	133.32***	91.33***	69.64***
R Square	0.4913	0.0695	0.3561	0.3099	0.2895	0.1710

*** Statistical significance at 1% level, ** Statistical significance at 5% level, * Statistical significance at 10% level

Omitted variables are non-regulated MFIs, MFIs with individual and group lending, and credit unions